

REMARKS

By the present amendment, informalities in the specification have been corrected, and independent claims 1 and 4 and dependent claim 6 have been amended to clarify features of the present invention.

At the outset, applicants note that the present invention is directed to an optical disk drive apparatus and method for reading out information from an optical disk having a plural number of information recording layers made up in a direction of rotation axis thereof. In accordance with the present invention, a memory is configured to memorize the information read out from the information recording layers and a processor is configured to control the memory. More particularly, as illustrated in the structural arrangement of Fig. 2 and the flow chart of Fig. 1, the processor supervises accesses for reading information to each of a plural number of the information recording layers, and memorizes information which follows, upon which a transfer request is made from the host-computer, into a predetermined area of the memory, as shown in Fig. 3, in dependence upon a frequency of the accesses for reading out information, as illustrated in Fig. 4, obtained through the supervision thereof, which features are now clearly recited in claims 1 and 4. Thus, according to the optical drive apparatus and method, a predetermined memory area is determined in dependence upon or in relation to the frequency of accesses for reading out information made to the respective layers on the optical disk, so that it is possible to achieve a "pre-reading function" as described at page 14, lines 7 - 27 of the specification, noting that as described at page 14, lines 1 - 6, it is possible to use the buffer effectively through supervising the access frequencies for each layer as pre-reading data that is accessed at high frequency within the function of pre-reading the information recording disk having a plural number of layers thereon. Applicants

submit that the features recited in independent claims 1 and 4 and the dependent claims are not disclosed or taught in the cited art, as will become clear from the following discussion.

The rejection of claims 1 - 6 under 35 USC 103(a) as being unpatentable over Sako et al (US 6,853,613B1) in view of Nagase et al (US 2003/0140207A1) and Kamiya et al (5,109,498), this rejection is traversed insofar as it is applicable to the present claims and reconsideration and withdrawal of the rejection are respectfully requested.

In applying Sako et al to the claimed invention, the Examiner notes that Sako et al teaches an optical drive apparatus for reading-out information from an optical disk having a plural number of information recording layers made up in a direction of rotation axis thereof. However, as recognized by the Examiner, "Sako et al fail to teach said processor supervises accesses to each of said plural number of the information recording layers, and memorizes information which follows information, upon which a transfer request is made from said host-computer, into a predetermined area of said memory, upon the basis of a frequency of the accesses obtained through the supervision thereof". (emphasis added). As noted above, claims 1 and 4 have been amended to clarify that the accesses are accesses for reading out information to each of the plural number of the information recording layers, and that the information is memorized into a predetermined area of the memory in dependence upon a frequency of the accesses for reading out information, obtained through the supervision thereof. Thus, the Examiner recognizes the deficiency of Sako et al with respect to the claimed features of claims 1 and 4 of this application, and applicants submit that all claims patentably distinguish over Saki et al in the sense of 35 USC 103.

In an attempt to overcome the recognized deficiencies of Sako et al, the Examiner cites Nagase et al and Kamiya et al, contending that Kamiya et al teach the buffer memory to have a plurality of cache areas each of which has a predetermined area size which intercedes between the processor and memory. Applicants note that Kamiya et al relates to data management using a cache memory for memorizing both data, i.e., operand data and instruction data, but Kamiya et al provides no disclosure or teaching of obtaining data from an optical disk having a plural number of information recording layers made up in direction of rotation axis thereof for reading out information from the respective layers. Moreover, in Kamiya et al, the size of the cache memory is determined in advance, and there is no disclosure or teaching of changing the size of the capacity of the memory, that is a predetermined area of the memory in which the information is memorized in dependence upon the frequency of the accesses for reading out information from the layers on the optical disk. Thus, applicants submit that the Examiner's attempt to combine Kamiya et al with Sako et al represents a hindsight reconstruction attempt, since it is apparent that Kamiya et al issued many years prior to the filing of the Sako et al patent, and Sako et al did not adopt the buffer memory device of Kamiya et al. Additionally, as pointed out above, Kamiya et al fail to overcome the deficiencies of Sako et al as pointed out above, such that applicants submit that all claims patentably distinguish over this proposed combination of references in the sense of 35 USC 103, and all claims should be considered allowable thereover.

With regard to the further combination with Nagase et al, the Examiner contends that this reference teach a system of reducing an access time to storage areas by maintaining a table of number of accesses made to the data block

frequency of access to a memory. Applicants submit that Nagase et al discloses a system including a plurality of types of storage mediums such as a semiconductor memory 88, a RAID 90, an optical disk library 92, and a magnetic tape library 94, as illustrated in Fig. 3 of Nagase et al. In accordance with the disclosure thereof, expectation is made upon a frequency of data accessing and if the data is expected to be used, the data is moved into a quick-response storage medium, in advance. Applicants submit that irrespective of the Examiner's contentions, Nagase et al, like Kamiya et al, fail to disclose or teach an optical disk having a plural number of information recording layers made up in a direction of rotation axis thereof, and that in dependence upon a frequency of the accesses for reading out information to each of the plural number of information recording layers, information is memorized into a predetermined area of the memory, which features are also not disclosed or taught by Sako et al. Thus, applicants submit that Nagase et al, like Kamiya et al, fails to overcome the deficiencies of Sako et al and the proposed combination fail to provide the recited features of independent claims 1 and 4 and the dependent claims of this application in the sense of 35 USC 103, such that all claims should be allowable thereover.

The Examiner contends that the combined teaching of Kamiya et al and Nagase et al in view of Sako et al would have rendered obvious the processor transferring information between host-computer and predetermined area of the memory as claimed for the benefit of faster access time between the memory buffer and processor. Applicants submit that the Examiner has engaged in a hindsight reconstruction attempt and that none of the cited art taken alone or in combination provide the recited features of independent claims 1 and 4 and the dependent claims, wherein a frequency of accessing for reading out information from the

different layers of the multi-layer optical disk is utilized for storing information in a predetermined area of the memory so as to obtain the “pre-reading function,” as described at page 14 of the specification of this application. Thus, applicants submit that independent claims 1 and 4 and the dependent claims patentably distinguish over the cited art in the sense of 35 USC 103 and all claims should be considered allowable thereover.

With respect to the features of the dependent claims, it is noted that dependent claims 2 and 5 further define the feature that the memory comprises the predetermined areas in a plural number thereof which is equal to two or greater than two, and irrespective of whether such feature may be disclosed in the cited art, it is readily apparent that such feature when considered in conjunction with the parent claim further patentably distinguishes over the cited art in the sense of 35 USC 103. Likewise, dependent claims 3 and 6 recite the feature that the processor makes management on the access frequency for each of information recorded in each layer of the optical disk or supervision on the access frequency is made for each layer of the plural layers of the optical disk, from which information is read out. It is readily apparent that neither Kamiya et al nor Nagase et al provide any disclosure with regard to information of each layer of a multi-layer disk and the access frequency for reading out such information. Thus, applicants submit that these dependent claims when considered in conjunction with the parent claims further patentably distinguish over the cited art and the dependent claims should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims present in this application recite features not disclosed or taught in the cited art in the sense of 35 USC 103 and all claims should be considered allowable

thereover. Accordingly, issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 520.43638X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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